NEWS

Placing experimental asphaltic concrete lining in Contra Costa Canal — see p. 5

...GOOD THING
THEY USED EXCELLAY HERE
FROM THE DAILY REPORT OF A
TIGER BRAND WIRE ROPE ENGINEER
Yes sir--time is money on this job. They're working under a penalty clause. Tough digging slowed them down at the start, but the job is sailing along smoothly enough now, and it looks like they'll beat the deadline.
Just to make sure, I gave the wire rope a once-over today. You can tell it's had some tough treatment, but I'm sure it'll finish the job with plenty to spare. Good thing, though, that they used our Excellay Preformed Rope. Any other rope there would have given them trouble long ago.
Yours, Al

TURN your wire rope questions over to a Tiger Brand Wire Rope Engineer. He lives and breathes wire rope, spends most of his time seeing it in action, checking its performance, studying ways and means of saving you money.

These engineers know what they are talking about, because they spend most of their time right out where the rope is used. They know what punishment it has to stand and how to stretch your wire rope dollar. Besides, they have no axe to grind—they are not interested in promoting any one construction or grade of wire rope over any other. For American Tiger Brand Wire Rope is made in all constructions and all grades.

USS

EXCELLAY *Preformed* **WIRE ROPE**

AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York

COLUMBIA STEEL COMPANY
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UNITED STATES STEEL

ENGINEERING NEWS-RECORD

NEWS

Volume 123 NOVEMBER 30, 1939 Number 22

NOTES ON THE NEWS

Quick Surveys of Construction Events

▶Plans of the CIO to enter actively into the building field were advanced definitely last week in the signing of an agreement between the CIO Construction Workers Organizing Committee and a group of builders in Washington. Significant in the agreement is the setting of wage scale 25 per cent below those of AFL building trades unions in an attempt to interest the non-union employers who have been paying a lower rate.

▶Carl Bock's resignation from the TVA, where he served as Arthur Morgan's right hand man from the start, marks the formal end of the Morgan influence in that agency. In leaving, Bock put in a good word for the independent consulting engineer, urging the TVA directors to lean heavily on the advice of independent consultants who may be expected to take a detached view of the problems of the TVA engineering staff.

▶A tunnel driving record is claimed for a big drainage tunnel in Colorado. Driving an 8x9-ft. section in hard rock, the Golden Cycle Corp. advanced 1,534 ft. in October. Has anyone a better record to show?

▶Speaking of tunnels, two headings met last week on the 85 miles of tunnels being driven for New York's new Delaware water supply. There will be 24 more such holing-through ceremonies before the job is done.

▶Columbia University this week concluded a long celebration of the 75th anniversary of the founding of its engineering school. Leon S. Moisseiff was the civil engineer picked for special honor at the concluding ceremony. The civil engineering department was established in 1869 and the summer school of surveying in 1884.

RESIGNING TVA ENGINEER

CARL A. BOCK, chief consulting engineer for the Tennessee Valley Authority, Nov. 25 resigned after being with the organization since 1933. Bock was the first engineer to be employed by the TVA when it was organized, and he first served as coordinator and secretary to the board. He was soon promoted to assistant chief engineer and was recently made chief consulting engineer. Bock also is acting as consulting engineer for the National Resources Planning Board in the Ohio River Basin, and for the government of Porto Rico on dam construction.

Financing for Texas Work Held Unconstitutional

Remission of nearly $4,000,000 of state taxes in Harris County to provide for constructing a flood control system in the Houston area has been held unconstitutional by the state attorney general. As provided in the measure, Harris County, starting with the current taxpaying period, would be allowed to retain for ten years one-half of the state general fund taxes collected within the county borders.

Labor and Builders Reach Agreement

Contract signed by CIO's Construction Workers' Organizing Committee and Construction Industry Employers, Inc.

CIO's Construction Workers Organizing Committee signed its first labor agreement with an organization of employers last week. The contract, made with a newly-organized District of Columbia group, Construction Industry Employers, Inc., provides for a wage scale about 75 per cent of that enforced by the AFL building trades unions on the rather small percentage of Washington construction which is unionized. The work is to be organized on an industrial basis—all crafts belonging to the same union and the employer being free to shift men from one job to another so long as the higher of the two scales is paid. CWOC has a few contracts around the country with individual employers, but with no employer group.

Construction Industry Employers, Inc., is a new group having about 30

(*Continued on p. 6*)

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Hospital Officials Indicted in Illinois

Grand jury indictments of malfeasance in office have been returned against four officials of the Manteno, Ill. state hospital where 53 patients died of typhoid and some 500 contracted the disease from a polluted water supply. Reports from the State Board of Health of the unsafe water had been forwarded to the hospital officials at intervals of one to two months but nothing was done, according to the findings. Insanitary food preparation was also charged.

If convicted of the charge, which is a misdemeanor, the officials could be dismissed and a fine of $10,000 levied. For further details see *ENR* Oct. 19, 1939, p. 516.

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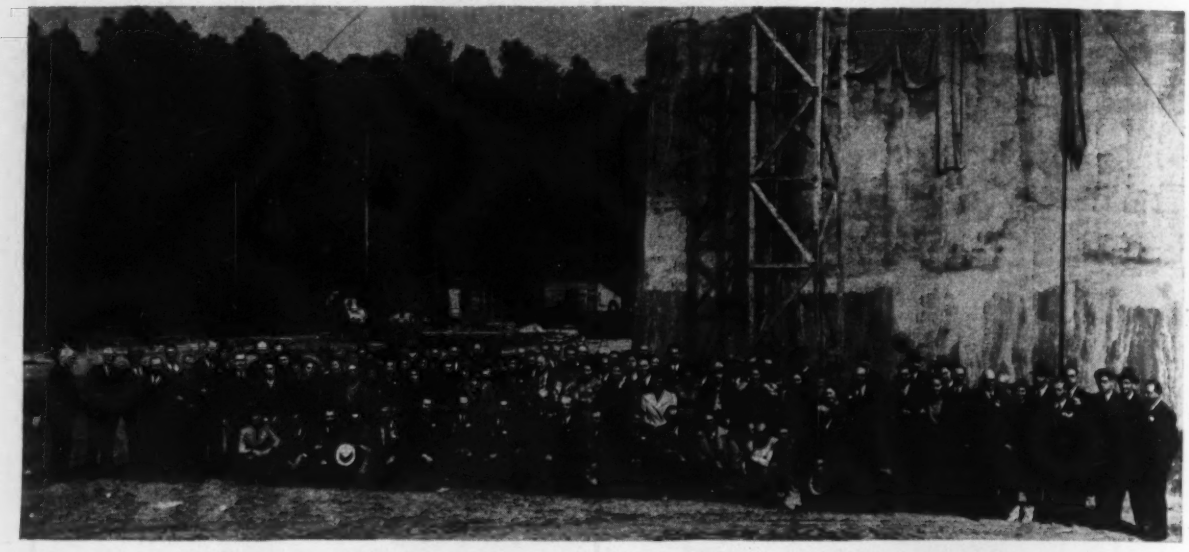
Contractor Loses Suit Over Water Pollution

The Mississippi Supreme Court on Nov. 12 upheld a ruling of the Bolivar County circuit court granting Mrs. Tillie P. Farmer a $3,000 judgment against the Carey-Reed Construction Co. for injuries due to drinking polluted water. The court decision pointed out that 457 other persons were affected by drinking the water that allegedly became polluted through negligence on the part of the company, which was constructing a highway in the Delta region.

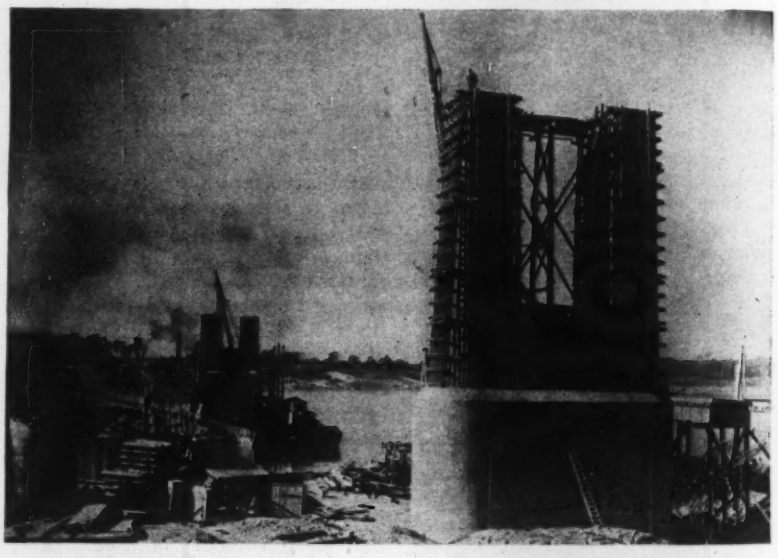
According to the testimony, the company was first securing water from the city of Cleveland but later built a line to obtain water from Jones bayou near Boyle. It was claimed in the suit that failure on the part of the company to place a safety valve on the new line allowed the bayou water, which the board of health reported as polluted, to contaminate the city water through the cross-connection.

Mississippi Bonds Sold At Low Interest Rate

The sale of $5,000,000 in highway bonds to a syndicate headed by Halsey-Stuart & Co., Chicago, has been completed by the Mississippi State Bond Authority at a record low interest rate of 2.83 per cent. The sale, which calls for $2,000,000 at 3 per cent interest and $3,000,000 at 2¾ per cent interest plus a premium of $2,400, effects a large saving over an RFC proposal.



MID-SOUTH ENGINEERS VISIT SITE OF NEW MISSISSIPPI HIGHWAY BRIDGE



When the Mid-South Section of the American Society of Civil Engineers met recently at Greenville, Miss., during the second day an inspection trip was made to a site 9 mi. downstream from Greenville where a bridge is being built to span the Mississippi River. The entire length of the structure, which is being built by the city of Greenville with PWA aid, is about two miles. The length of the Mississippi approach is 6,000 ft. and that on the Arkansas side 2,200 ft. The bridge proper is a cantilever structure with a main span of 840 ft. and two 640-ft. side spans. Total cost of the work is $4,450,000, $2,000,000 being a grant and $2,200,000 an RFC loan.

The highway approach at the east end is being built by the Mississippi State Highway Department with R. A. Harris chief engineer of the Mississippi department. W. W. Zass, chief engineer, is directing the work of the Arkansas State Highway Department in constructing the west approach. The Massman Construction Co., Kansas City, has the contract for building the four river piers, two of which are shown in the picture at the right. On the job Oscar A. Zimmerman is representing the Massman Co. The superstructure work of the main section is being done by the American Bridge Co., Pittsburgh, which is represented by D. N. Garner, as field engineer. The contract for the approach embankment was let to W. G. Cook, Forest, Miss., and the substructure viaduct work is being done by the Frank C. Ragsdale Co., Memphis, Tenn., with H. C. Blazer resident engineer. The connecting highways on the Mississippi side of the river are being constructed under two contracts held by the Birdine Construction Co., Shaw, Miss., and the Couch Construction Co., Dauphin, Ala. Ash-Howard-Needles & Tammen, Kansas City, Mo., consulting engineers are represented on the site by L. D. Brown. Charles A. Branch is chief resident engineer inspector for PWA and H. M. Gallagher is representing RFC.

George E. Beggs Dies at Princeton

George Erle Beggs, long a leading figure in structural research, professor of structural engineering at Princeton university and since 1937 chairman of the university department of civil engineering, died on Nov. 23 at age 56. A native of Illinois, Beggs was educated at Northwestern (1905) and Columbia (1910), and then spent a number of years in professional work in the employ of the American Bridge Co., the Lehigh Valley R. R., the Phosphate Mining Co. of Lakeland, Fla., and others. After brief teaching experience at Columbia and Union College he joined the Princeton faculty in 1914, taking up mechanics and structural engineering.

About twenty years ago Prof. Beggs took up the study of mechanical methods of analyzing statically indeterminate structures, some of his earliest work in this field having been reported by Robins Fleming in *Engineering News-Record* in 1919 (Aug. 28, p. 428). He later developed instruments of great precision, the well known Beggs deformeters, permitting rapid analysis of cardboard or celluloid models of constrained structures by mechanical measurement of reactions. He applied these methods to the analysis of various arches, tunnels, rigid frames, catenary supports and similar structures. Most recently the method was applied to experimental study of skew arches. This work also led to extensive activity in direct stress measurements on models of structures, most important of which were model tests on the San Francisco-Bay Bridge suspension spans and the towers of the Golden Gate suspension bridge, on railway frogs, and on special structures for the government of the United States.

Beggs was called upon as consultant on numerous important structures, among them the Princeton Stadium, the Arlington Memorial Bridge over the Potomac, the San Francisco-Bay Bridge, the Hackensack River bascule, and the Golden Gate Bridge. His deformeter gages have come into use in numerous foreign countries for analysis of continuous arches and other constrained structures. He was active in many societies, was chairman of the research committee of the American Society of Civil Engineers, member of the board of trustees of the Engineering Foundation and later chairman, and took part in the Stevenson Dam tests.

George E. Beggs

Des Moines Register

MATERIALS FOR NEW BRIDGE TOO HEAVY FOR OLD STRUCTURE

RECENTLY a truck loaded with 15 tons of steel piling for a new bridge being built on a farm to market road near Barnes City, Ia., caused collapse of the old structure being replaced. The driver, the only occupant of the truck that went down with the bridge, escaped uninjured.

Providence To Have Water Supply Board

New city charter will remove water supply from under jurisdiction of public works department

In a new charter for the city government of Providence, R. I., approved by voters last month, provision is made to place the administration of the water supply department in the hands of a board. The department is now under the jurisdiction of the department of public works. The new charter, which will be submitted to the state legislature in January, provides for the so-called strong-mayor type of city government and for the incorporation of the city council and board of aldermen into a single council with reduced membership.

The membership of the water supply board under the terms of the charter will include the city treasurer, ex-officio, and four others appointed by the mayor subject to the approval of the council. The terms of the members are staggered and will run for four years. The members will serve without compensation, and no member except the city treasurer may hold a municipal, state or federal office to which compensation is attached.

The board will appoint a chief engineer whose term shall not be more than four years, and who shall be a recognized civil or mechanical engineer of at least five years experience. The chief engineer will have complete supervision, management and control of the water service of the city, including reservoirs, purification plant, aqueducts and distribution.

The Providence water system serves about one-half of the population of Rhode Island which is concentrated in three cities and three towns in the Providence metropolitan area.

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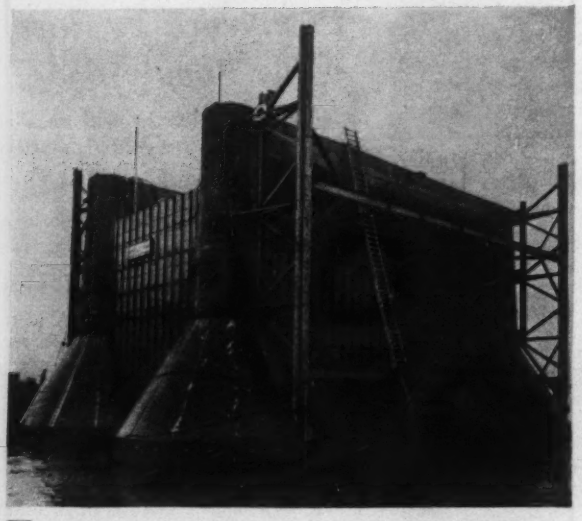
AFL Refuses to Aid Arizona Highway Engineers

Because the Wagner Act exempts state employees, the AFL has refused to aid Arizona highway engineers who have been threatened with dismissal if they engage in union activities (*ENR*, Nov. 16, 1939, p. 659). The Arizona labor-relations law is stronger than the Wagner Act, which makes it a felony to discharge an employee for union activities.

No employees of the Arizona State Highway Department have actually been discharged as yet and no further developments are expected until the special meeting of the Arizona section of the Am. Soc. C. E. in January.

Four-Legged Caisson Sunk for Bridge Pier



FOUR-CYLINDER 350-ton steel caisson for Potomac River bridge pier ready for towing from fabricating yard to pier site.

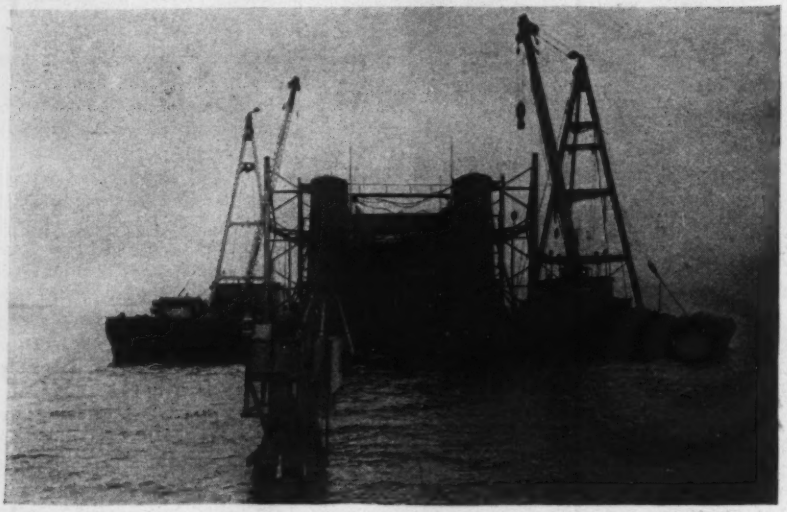
THE MERRITT-CHAPMAN & SCOTT Corporation turned another neat trick in foundation construction on Nov. 21 when they successfully sank the four-legged 350-ton steel caisson for the first large pier of the Potomac River bridge at Ludlow Ferry, Md., in 3 hr. The caisson consists of four steel cylinders 60 ft. high, 32 ft. in diameter for the lower 10 ft., tapering to 11½ ft. in the next 18 ft. of height, and then to 10 ft. at the top, connected in both directions with steel double diaphragm walls 4 ft. apart. The cylinders are 107 ft. c. to c. one way; 72 ft. the other.

The caisson was fabricated on a submerged platform alongside a railroad dock 2 miles from the site. Steel bulkheads in each of the four cylinders permitted blowing out the lower sections (open at the bottom) with compressed air to float the whole assembly. When afloat, the caisson was towed to the pier site.

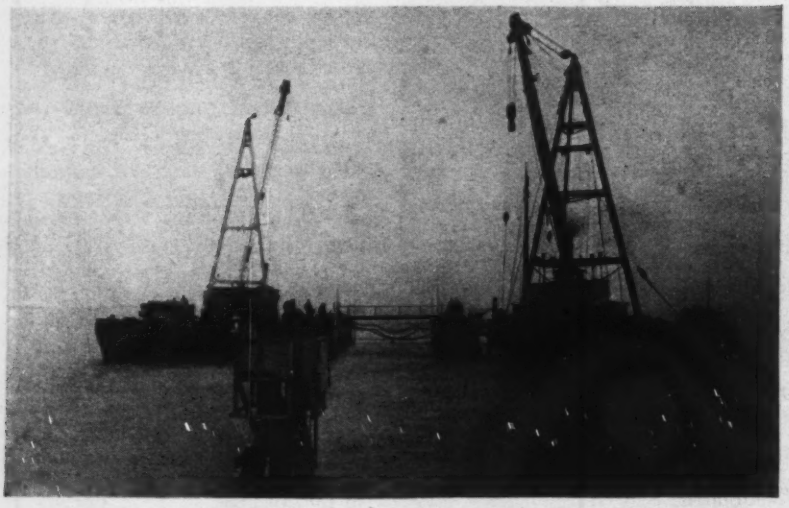
Two vertical trusses on each side of the caisson served as guides, and two large floating derricks held the caisson in position as it went down. Lines from the derrick hoist rigs, fastened to the guide trusses, helped to keep the caisson on an even keel. Sinking was by releasing air from the four cylinders through controls on top of the caisson. Buoyancy calculations showed the structure would be stable at the start and finish of sinking, but would be in a delicate state of balance when about half submerged. The derrick hoist lines provided the necessary stability to get the caisson past the unstable position.

The caisson landed on a previously-prepared timber platform, 56 ft. below water and supported on wood piles. Through openings in the platform, 152 steel H piles from 120 to 157 ft. long had been driven by the big driver described in these pages July 15, 1939, p. 49. The piles, in four clusters, projected as much as 17 ft. above the platform, and left little clearance inside the cylinders. The shells and crosswalls will be filled the tremie concrete.

Merritt-Chapman & Scott holds the $2,100,000 substructure contract for the bridge, a PWA project being built by the Maryland State Roads Commission. J. E. Greiner Co., Baltimore, is designer and consulting engineer on the project. A complete story on the foundations will appear in an early issue.



CAISSON STARTING DOWN, being sunk by releasing air from the corner cylinders. Derrick boats served as guides and stabilizers.



ON THE BOTTOM. Three hours after start of sinking the caisson landed on a pile-supported timber platform 56 ft. below water.

Experimental Section Built in Contra Costa

Bureau of Reclamation Photos

AN EXPERIMENTAL SECTION of Contra Costa Canal begins to take shape. In the foreground is an end of the regular canal lining—3 in. of reinforced concrete. Beyond can be seen the newly laid asphaltic concrete lining. Hot material is hauled 50 mi. from Oakland by truck, agitated in a regular concrete mixer and placed in the prepared ditch by the usual canal lining machine. This experimental strip of asphalt lining, about 300 ft. long, has a bottom width of 7 ft. and a lining height of 7½ ft.

STERILIZING THE SUBGRADE. This workman is applying creosote spray to the side slopes and bottom of the ditch to prevent weed growth beneath the asphaltic concrete lining about to be placed in the canal. Note the type of wire mesh reinforcement used in the test section.

IN A UNIQUE EXPERIMENT, two short strips of asphalt concrete lining have been placed in Contra Costa Canal, a unit in California's Central Valley Project. The experiment is being conducted in cooperation with the Asphalt Institute. Its purpose is to test the relative merits and cost of asphalt as a canal lining material in comparison to portland cement concrete.

The first 20 mi. of the canal, in which the experimental sections are located, are virtually completed from the intake at Rock Slough near Knightsen to a point three miles west of Pittsburg. Four pumping plants being erected near Oakley are two-thirds complete.

Construction has started on an additional 9-mi. section, it has been announced by the U. S. Bureau of Reclamation. Successful bidder on the new section is Heafey-Moore Co. and Frederickson & Watson Construction Co. of Oakland.

The new nine miles of canal just started will extend from the end of the present work east of Pittsburg, past Nichols, Port Chicago and Clyde to a point 2 mi. northeast of Concord. The contract includes the construction of a mile-long emergency spillway channel leading from the canal near Nichols to Suisun Bay, as well as several siphons, bridges, and large culverts. One of the siphons will be a barrel-type structure 1,000 ft. long to carry the canal under the four-lane Willow Pass Industrial Highway.

About 17 mi. of the 46-mi. Contra Costa Canal remain to be advertised for construction by the Bureau of Reclamation. The canal will end with a 1,500-ft. tunnel discharging into a 300-acre-ft. terminal reservoir on Vine Hill near Martinez.

Columbia Honors Engineer Graduates

Medals presented to engineers as part of celebration of founding of the engineering school

Twelve graduates of the School of Engineering at Columbia University, New York, on Nov. 27, received the first awards of the Thomas Egleston Medal for distinguished engineering achievement. The medals were presented at a special convocation culminating a series of meetings in celebration of the 75th anniversary of the founding of the School of Engineering as the School of Mines. Recipients of the medal, established in memory of Prof. Thomas Egleston, were Walter H. Aldridge, president, Texas Gulf Sulphur Co.; Prof. Edwin H. Armstrong, Columbia; Prof. Marston T. Bogert, Columbia; Gano Dunn, president, Cooper Union; Arthur S. Dwight, president, Dwight & Lloyd; Henry Krumb, consulting engineer, New York; Irving Langmuir, associate director, General Electric Research Laboratory; Leon S. Moisseiff, consulting engineer, New York; Stephen J. Pigott, John Brown Co., Scotland; Prof. Robert Peele, Columbia; Robert C. Stanley, president, International Nickel Co.; Arthur L. Walker, consulting metallurgist, New York.

Speakers at the convocation were William O. Hotchkiss, president of Rensselaer Polytechnic Institute, and Harvey N. Davis, president of Stevens Institute of Technology.

Civil engineers meet

As part of the 75th anniversary celebration, the Metropolitan Section of American Society of Civil Engineers, and the civil engineering alumni of Columbia University held a joint meeting at the University on Nov. 21. At that meeting Leon S. Moisseiff, spoke on progress in bridge and structural engineering; Carlton S. Proctor spoke on foundation engineering and soil mechanics and Walter E. Spear, chief engineer of the Board of Water Supply, New York, told of research on models of the spillway for Merriman Dam. Following the meeting the testing laboratories of the school were opened for inspection.

• • •

$22,000,000 Housing Job Planned for New York

Plans have been made for a $22,000,000 housing project for the borough of Brooklyn in New York. The proposed project calls for 3,828 apartments.

Labor and Builders

(*Continued from page 1*)

members, mostly house builders and subcontractors. Its president, Richard W. Frey, is a speculative house builder of Washington. All its members previously operated on a non-union basis and were unaffiliated with any employer organization. There is not in Washington at present any inclusive organization of building trades employers.

Labor rates lowered

The new contract provides for a five-day 40-hour week with a wage of $9 per day for most of the crafts; exceptions are the boilermakers and ironworkers who receive $12 and the elevator constructors who get $10. Scale for common labor is $4, for teamsters $4.80, and for helpers in the various crafts from $5 to $7. AFL scales for the skilled trades in Washington run $12 to $14 for an eight hour day.

The CIO rates, CWOC chairman A. D. Lewis told an *ENR* reporter, were arrived at as a compromise between the AFL union rates and the rates currently prevailing on unorganized work. Questioned whether contractors dealing with the CIO do not risk trouble with the AFL, Lewis pointed to provisions he considered very favorable to the contractor and asked whether contractors had ever got anything without fighting for it.

The present agreement, which Lewis says is typical of arrangements he hopes to make throughout the country, incorporates the closed shop and the check-off. Overtime provisions are conventional except that in emergencies multiple shifts are permitted at time and one tenth for the extra shifts. Strikes are forbidden throughout the 18-month life of the contract and compulsory arbitration of disputes is required. Right of the employer to discharge for cause is guaranteed. Foremen must be union members and must be paid a dollar over the scale.

An apprenticeship system, administered by a committee of three union men and three employers, is included in the contract. Apprentices, who must be under 24 years old, serve a four year term at a wage increasing gradually from 30 per cent of scale during the first six months to 85 per cent the last six months.

There is nothing in the contract, according to Lewis, to interfere with the free adoption of new methods or materials. His group, he says, was long ago compelled to recognize that it is impossible to prevent technical advance and to adopt a policy of welcoming innovations while trying to get part of the benefit for the workers.

Photo by R. F. Legget

CONSTRUCTION STARTED ON SHAND DAM IN ONTARIO

CONSTRUCTION has begun on the Shand Dam, major control structure of the Grand River Conservation Commission, about 70 miles west of Toronto and 17 miles north of Guelph. The work is eastern Canada's first river control project and is financed jointly by the federal, provincial and local municipal governments. It is being built to increase the minimum flow of the Grand River to 200 cfs and to satisfy requirements of the provincial board of health. It will also aid in flood control.

The dam will be 75 ft. high to contain 500,000 cu.yd. of earth fill. Shown in the picture is the fill on the east bank, the river having been diverted from this side to a new channel in the middle background. The upstream rock-fill toe may be seen at the right and the corewall at the extreme left. The spillway is to be beyond the retaining wall shown under construction in the center of the picture. Modern fill-building methods are employed.

H. G. Acres, consulting engineer, Niagara Falls, Ont., is chief engineer for the commission and the Rayner Construction Co., Toronto, is the contractor.

RFC Financing Sought For Battery Tunnel

A financing plan for the proposed Battery-Brooklyn vehicle tunnel at New York has been submitted to the Reconstruction Finance Corp. by the New York Tunnel Authority together with traffic studies and cost estimates. Preparation of detailed drawings for the tunnel has been pushed by the engineering staff of the tunnel authority to the point where bids on the construction shafts could be called as soon as a financing plan is approved.

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Foundation Studies Begun For $4,000,000 Ohio Dam

Drilling work to obtain foundation data for the proposed $4,000,000 flood control dam on the Olentangy River 30 miles north of Columbus, Ohio, has begun. The studies are being made by the U. S. Engineers and, if plans are approved, work is expected to start next summer.

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Tunneling Record Made On Colorado Drainage Bore

What is believed to be the world's record for hard-ground tunneling was made in October on the Carlton Drainage Tunnel in Colorado when an advance of 1,534 ft. was made from a single heading during the month. In 28 working days in the previous month the advance was 1,367 ft. The tunnel, 8x9 ft. in section, is being driven by the Golden Cycle Corp. to drain several large mines in the Cripple Creek district. It will be 32,000 ft. long. A. H. Beebe, vice-president of Golden Cycle, is directing the operations; John Austin, of Colorado River Aqueduct fame, is superintendent.

Driving is through solid granite. Four Ingersoll-Rand 3½-in. auto-feed drifters are mounted on a home-made track drill carriage. Conventional forged drill steel was used until Sept. 28, when Timken detachable bits were put on trial. The October record indicates the removable bits will continue in use. Mucking is by an Eimco 21 loader, loading into 84-ft. cars, switched by a cherry picker. Semi-gelatin powder, 50 per cent strength, is fired in six delays.

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Franchise Sought For Houston Tunnel

The commissioner's court of Harris County, Texas, has received a request to grant to private interests a franchise for constructing and operating a toll tunnel under the Houston ship channel. The court has ordered a public meeting for Dec. 11 at Houston to hear any others who might be interested in obtaining the franchise.

FIRST SECTION HOLED THROUGH ON DELAWARE AQUEDUCT

A CEREMONIAL BLAST on Nov. 22 joined the south heading of Shaft 21 with the north heading of Shaft 22, marking the completion of driving on the first section of the 85-mile Delaware River Aqueduct for the extended New York City water supply system. This view, looking south from S. A. Healy's untimbered Shaft 21 section into Shea-Kaiser Company's timbered Shaft 22 heading, shows the survey gangs were not far off, for the headings met in expected fashion. There will be 24 more such holing-through ceremonies before the long tunnel is complete. About one-third of the total length has been driven to date and concrete lining has been started in one section.

Headings Meet In Delaware Aqueduct

Excavation completed on first section of New York water tunnel between Shafts 21 and 22

Under the ominous shadow of a threatened water shortage in New York City, due to continued drought, the first tunnel section on the Delaware Aqueduct system, designed to increase the city's water supply by nearly 50 per cent, was holed through on Nov. 22. From a raised platform at the bottom of Shaft 21 on S. A. Healy's contract, and in the presence of New York Board of Water Supply engineers, contractors from all over the aqueduct and some 200 guests, hard-hatted Peter and George Gillespie, grandsons of board commissioner Geo. J. Gillespie, set off the blast that joined the south heading of Shaft 21 with the north heading of Shaft 22. The total distance between the shafts is 5,784 ft. Steve Healy's powder monkey gave the crowd an extra jolt by hooking a full-round shot in the north heading to the ceremonial firing switch. Several news photographers, standing on a 4-in. air line, thought their careers had been cut short when the pipe gave way under their weight, sending a roaring blast of high-pressure air into the startled crowd.

Large Size Excavation

The tunnel section here is about 24 ft. in diameter, and will be lined to 19½ ft. finished diameter. The Shea-Kaiser Co., contractor at Shaft 22, completed their 4,900-ft. north heading Sept. 1; they will hole into the Shaft 23 heading next month. Tom Price is running the job for Shea-Kaiser; M. R. Miller is superintendent for Healy. John C. Buhrendorf is division engineer in charge of these sections for the city; Harry Bouton is department engineer for the south end of the aqueduct.

Walter E. Spear, chief engineer of the board, stated excavation on the 85-mile length of tunnels is about one-third complete. The water board hopes winter snows will end the long drought; otherwise a serious water shortage faces the city.

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Vanderbilt Also Accredited

In a report on the accrediting by E. C. P. D. of college engineering courses (*ENR*, Nov. 9, 1938, p. 602), Vanderbilt University was omitted from the list of new schools recognized. Vanderbilt's courses in civil, electrical and mechanical engineering have been approved.

Robert P. Woods is an enthusiast on species of wood used for railway ties in the Southwest, a sample of which he is shown examining. Always active in the local (Kansas City) Am. Soc. C. E. section, he was president last year. He has been city engineer in Wabash, Ind., and chief engineer of an irrigation project in New Mexico. In the picture he is explaining his way of preserving tree samples to show the bark, pith, heart and sapwood.

Long piles are being driven for a new post office building at San Francisco; some are 150 ft. long, and a total of 4,000 is going in. They are being put down by **Ben C. Gerwick,** whose smile indicates how he likes his job; he has been doing this kind of work successfully for more than 25 years. What his competitors think of Ben was shown when they elected him president of the Northern California Chapter, A.G.C.

Louie Redding (left), resident engineer for the Alabama State Highway Commission, and **John S. Loving,** vice-president of the T. A. Loving Company of Goldsboro, N. C., look over plans for the $647,666 bridge being built over the Alabama River at Selma, Ala. Slated for completion in May, 1940, the structure is 1,250 ft. long and will have 10 concrete arch deck spans and one 250-ft. steel arch through span. The previous bridge was built in 1884.

MEN AT WORK

E. B. Black and **W. G. Fowler** recently were stopped by the editor in front of a parking lot in Kansas City long enough for the minicamera to get in its work. They were on their way to lunch after a conference on current water supply jobs at Wichita, Kan., and Owensboro, Ky., at the nearby office of Black & Veatch, where Black is senior partner and Fowler is office engineer. Fowler still is quite proud of the 23rd St. bridge which the firm of sanitary, hydraulic and municipal engineers designed for the Western Missouri metropolis.

This trio of Chicago engineers is in the thick of public service activities in Chicago. When this photo was snapped, the three had just stepped out of the Bismarck Hotel where a group of Association of Commerce business and professional men had been hearing about the great subway and superhighway program which the city is now launching. **C. E. DeLeuw** (left) is consultant for the city and was one of the speakers. **W. R. Wright,** local representative of Ford, Bacon and Davis and **E. A. Rummler,** patent engineer, acted as co-chairman of the committees sponsoring the meeting.

MEN AND JOBS

TED M. MOODY, office engineer with the International Boundary Commission, Dallas, Tex., has been appointed administrative assistant in the Public Works Department, Dallas, Tex.

COL. B. M. CASTEEL, superintendent of the Missouri state highway patrol, has been appointed by President Roosevelt WPA administrator for Missouri, effective Dec. 1. Casteel, who is an engineer officer in the Army Reserve Corps, will succeed MATTHEW S. MURRAY, Kansas City, who resigned several weeks ago.

EDWARD EDGERLY, state superintendent of highways for Lancaster County, Pa., has been named chief sanitary engineer in the Pennsylvania department of health.

ERLE K. RAMSEY, engineer examiner for the Public Works Administration, Fort Worth, Tex., is now employed as chief engineer for Leo Sanders, general contractor, Oklahoma City, Okla.

CARL GARRISON, engineer of Major County, Okla., has resigned and is now associated with the Anderson Pritchard Oil Co., Oklahoma City, as sales engineer.

A. MONTGOMERY, engineer of Beaver County, Okla., has resigned and returned to his home in Oklahoma City because of an acute illness.

W. D. BARROWS, Kentucky State Highway Department, has been appointed a member of the board of registration for professional engineers in Kentucky. He succeeds THOMAS H. CUTLER, chief engineer of the Kentucky State Highway Department. (It was erroneously reported in an earlier issue that Barrows was chief engineer of the state highway department.—*Editors*).

GEORGE M. MARCH, city manager and city engineer of El Reno, Okla., has resigned, effective Dec. 1. March has held the position for two years.

LEWIS H. FORTIER, assistant superintendent of the McNamara Construction Co., Ltd., of New Brunswick, has been made inspector for the Ontario Highway Construction Safety Association. Fortier, who is a civil engineering graduate of the University of Toronto, has his offices in Toronto.

C. K. S. MACDONELL, division engineer at Chatham for the Ontario department of highways, has been transferred to take charge of Division No. 11 with headquarters at Huntsville. E. J. HOSKING, division engineer at Huntsville, has taken over MacDonell's duties.

VERGIL DAVIS has been put in charge of construction for the John W. Murphey-Leo B. Keith Building Co., Tucson, Ariz.

ROBERT T. REGESTER, sanitary engineer with Whitman, Requardt & Smith, consulting engineers of Baltimore, has resigned to open offices in Baltimore to do consulting work in sanitary engineering. In his new work he will specialize in sewerage and sewage treatment, water pollution problems, drainage and flood protection work and water supply developments.

CHESTER WEATHERELL, city engineer of Olean, N. Y., has been directed by the city council to make an investigation of a recent construction accident in that city, which resulted in one death and injury to several others.

J. M. KELLOGG, vice-president and chief engineer of Siems, Helmers, Inc., St. Paul, Minn., has resigned to become associated with Nick F. Helmers, Inc., general contractors, in a similar capacity.

WILLIAM J. GRAY, assistant regional engineer for PWA in Omaha, has announced his resignation. Gray, consulting engineer at Springfield before he joined the PWA in 1933, was chief engineer for all of the PWA work in Missouri when the state office was in St. Louis. Previous to his work as consulting engineer at Springfield, he served ten years with the U. S. Engineers.

EDWIN F. FRANZ, graduate of the University of Louisville, has been appointed sanitary engineer to succeed C. M. DAVIDSON, who resigned recently to become sanitary engineer with the Louisville city health department (*ENR*, Nov. 2, 1939, p. 596). Franz was assistant sanitary engineer from Feb. 1 to July 1, 1939.

EMILIO PITTARELLI, consulting engineer of New York City, recently was presented the Cross of Commander of the Crown of Italy on behalf of King Victor Emmanuel in recognition of Pittarelli's work as construction engineer on the Italian Pavilion at the New York World's Fair.

LON C. INGRAM, resident engineer for the Texas State Highway Department at Lubbock, has been transferred to the Austin office.

GEORGE MCCLELLAN, engineer with the Texas Co., has recently been transferred to Austin, Tex. McClellan once served as county engineer and as division engineer for the Texas State Highway Department.

J. H. MURDOUGH, Texas Technological College, has been appointed a member of the planning board for the City of Lubbock, Tex.

MEETINGS

HIGHWAY RESEARCH BOARD, annual meeting, National Academy of Sciences, Washington, D. C., Dec. 5–8.

MEXICO DEPARTMENT OF PUBLIC HEALTH, first national convention of sanitation engineers, Mexico City, Dec. 18-20.

REGIONAL AND LOCAL

BUILDING INDUSTRY CLUB, St. Joseph, Mo., annual meeting, Dec. 4.

INDIANA COMMISSIONERS ASSOCIATION, annual convention, Indianapolis, Dec. 4-6.

NEBRASKA IRRIGATION ASSOCIATION, annual convention, North Platte, Nebr., Dec. 7–8.

EASTERN PHOTOELASTICITY CONFERENCE, Massachusetts Institute of Technology, Cambridge, Mass., Dec. 9.

ASSOCIATION OF WESTERN STATE ENGINEERS, Denver, Colo., Dec. 12-13.

ASSOCIATED GENERAL CONTRACTORS, Nebraska building chapter, annual meeting, Omaha, Nebr., Dec. 13.

ASSOCIATED GENERAL CONTRACTORS OF AMERICA, Carolinas branch, annual convention, Columbia, S. C., Dec. 14-15.

INDIANA SOCIETY OF PROFESSIONAL ENGINEERS, annual fall convention, Indianapolis, Dec. 15.

AMERICAN WATER WORKS ASSOCIATION, New York Section, winter meeting, Commodore Hotel, New York City, Dec. 28.

ELECTIONS AND ACTIVITIES

THE COMMISSIONERS of ten northwest Colorado counties have organized the County Commissioners Association of

(*Continued on p.* 10)

Meetings

(Continued from page 9)

Northwest Colorado. The ten counties are: Eagle, Garfield, Lake, Pitkin, Grand, Routt, Summit, Moffat, Jackson and Rio Blanco. Van A. James, Moffat County, is president.

THE ENGINEERING ALUMNI ASSOCIATION of the University of Toronto has announced an engineering alumni medal, the medal to be awarded periodically to graduates of the university in recognition of their outstanding achievements in the field of engineering. The first two medals were recently awarded to C. R. Young, graduate of 1903 and now head of the department of civil engineering, and A. S. Runciman, graduate of 1911 and now superintendent of all transmission lines with the Shawinigan Water & Power Co., Montreal.

AT THE recent 51st annual meeting and dinner of the Building Congress and Exchange of Baltimore the following officers were elected to serve during the coming year: Robert Q. Herring, president; Joseph A. Brown, vice-president; Francis H. Jencks, second vice-president; T. Russell Hicks, third vice-president; Howard MacCarthy, Jr., secretary, and Harold M. Cummings, treasurer.

Civil Service Examinations

U. S. GOVERNMENT: junior engineer, $2,000 annually, all branches of engineering. Application must be on file by Dec. 11.

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Western Earthquake Does Little Damage

Special Correspondence

A survey shows that very little structural damage resulted from the earthquake in western Washington Nov. 12. A few chimneys were cracked and overthrown in various places and a rather heavy piece of cornice was displaced from a building in Tacoma. In Seattle there was minor cracking of plaster in some buildings which swayed sufficiently to distort the rectangular panels that their framing created. But even two days later the Seattle building department had received no reports of major damage.

However, those residing in apartment houses and hotels and late theatre goers had a disquieting experience. Although the most severe earthquake to be experienced in western Washington in historical times, it is believed that the sway and movement of buildings was exaggerated in press reports.

Bids to Be Opened Soon For Red River Work

Bids for the $5,000,000 outlet works for the Red River Dam, which is to be built on the Texas side of the river, will be opened at Denison, Tex., Dec. 15 in the U. S. Engineers Office. The outlet work will consist of eight conduits 20 ft. in diameter and about 800 ft. in length along with approach channels and intake structure at the west end and the spilling basin at the east end.

The government will supply cement, sand and aggregate for the concrete work and the contractor will provide all of other materials, labor and equipment. Bids for the material to be purchased by the government are to be opened Dec. 5.

CONTRACTS AND CAPITAL

HEAVY engineering construction awards for the week total $57,501,000, a decrease of 16 per cent from the volume for the corresponding 1938 week.

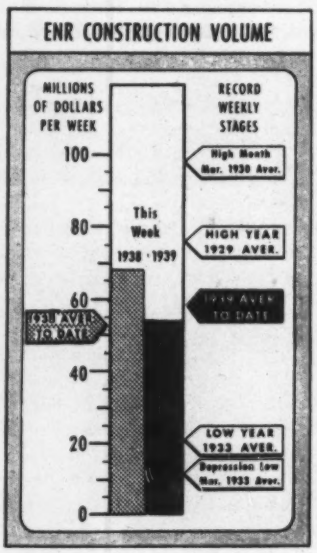
The construction volume for 1939 to date, $2,812,529,000, has already exceeded the total for the entire year of 1938, and is 11½ per cent greater than in the initial 48-week period last year. Private construction has also topped its last year's total, and is 10 per cent above the 48-week volume in 1938. Public awards to date are 12 per cent higher than in the corresponding period a year ago.

Private awards for the week are 53 per cent above the week last year. This is the 12th consecutive week in which they have surpassed their respective 1938 values. Public construction, however, is 33 per cent below the week a year ago.

In the classified construction groups, industrial buildings, an important factor in the private gains in the past 12 weeks, and sewerage and highways, top their respective totals of a year ago; and waterworks, sewerage, industrial and public buildings, earthwork and drainage, and highways exceed their volumes for the short preceding week.

New capital for construction purposes for the week, $19,297,000, is 46 per cent lower than in the corresponding 1938 week. The current week's financing is made up of $13,360,000 in state and municipal bonds, $5,815,000 in corporate security issues, and $122,000 in RFC loans for public improvements in Texas and California.

New construction financing for the year to date, $2,352,917,000, is 35 per cent lower than in the 48-week period last year.



CONTRACTS

(Thousands of dollars)

	Week Ending Dec. 1 1938	Nov. 23 1939	Nov. 30 1939
Federal	$10,133	$3,041	$6,674
State & Municipal	44,457	21,724	30,105
Total public	$54,590	$24,765	$36,779
Total private	13,546	22,890	20,722
TOTALS	$68,136	$47,655	$57,501
Cumulative 1939 (48 weeks)			$2,812,529
1938 (48 weeks)			$2,520,817

Note: Minimum size projects included are: Waterworks and waterways projects, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1938 48 Wk.	1939 48 Wk.
NON-FEDERAL	$2,452,057	$1,224,889
Corp. securities	354,004	204,483
State & Mun.	630,340	531,265
R.E.A. loans	67,495	89,445
R.F.C. loans	100,344	8,049
P.W.A. allot.	833,320	.....
U.S.H.A. loans	265,054	201,647
Fed. Aid—Hwys.	201,500	190,000
FEDERAL	$1,143,695	$1,128,028
TOTAL CAPITAL	$3,595,752	$2,352,917

FHA MORTGAGES

	Week Ending Nov. 26 1938	Nov. 18 1939	Nov. 25 1939
Selected for appraisal	$17,773	$19,002	$16,133*
Cumulative 1939 (47 weeks)			$1,040,653*
1938 (48 weeks)			$ 929,010

* Subject to revision.

ENR INDEX NUMBERS

Index Base		1913	1926
Construction Cost	Nov.	238.20	114.50
Building Cost	Nov.	201.24	108.95
Volume	Oct.	222	97

OBITUARY

PAUL E. BOURNONNAIS, 51, chief engineer of the Quebec Streams Commission since 1936, died Nov. 24 in Montreal. Bourbonnais, who was a graduate of the l'Ecole Polytechnique in 1914, was named assistant to the chief engineer in 1928 and became chief engineer in 1936.

FRANK B. BAIRD, 87, president of the Buffalo & Lake Erie Public Bridge Co. and the Buffalo and Fort Erie Public Bridge Authority, died Nov. 15 in Buffalo, N. Y. Some years ago Baird was awarded the Chancellor's Medal for his efforts in bringing about the building of the Peace Bridge between the United States and Canada.

FLOYD HAMILTON, district engineer for the Louisiana State Highway Commission at Lake Charles, died Nov. 8. Hamilton graduated from Louisiana State University in 1909 with a B.S. degree in civil engineering and joined the highway commission in 1920. Previous to that he had worked for the state of Louisiana as location and construction engineer in the building of the first permanent road of Calcasieu Parish.

GEORGE C. BRANDLEY, 81, connected with the engineering department of the city of Newark for 50 years, died Nov. 25 in Caldwell, N. J. Brandley received his engineering education at the U. S. Military Academy at West Point. He retired five years ago from Newark engineering department.

WALTER RAE, 59, construction engineer, died recently at Myrtle Beach, S. C. A native of Scotland, Rae upon coming to this country, became engaged in the construction industry and in 1907 formed his own company. He is one of the founders of the Constructors Association of Western Pennsylvania, an association which he served for two terms as president.

ALDEN SMOOT, 56, died last week in Washington, D. C. Smoot was educated at Pennsylvania Military College and George Washington University. During the World War he was stationed at the Savannah, Ill., proving grounds as captain of the Quartermaster Corps, construction division, U. S. Army. At the time of his death he was engaged in the construction business in Washington and New York City.

JOHN DEVAULT, 86, civil engineer of Seattle, died in that city Nov. 11. DeVault had served with the engineering departments of the city of Seattle and as engineer of King County. He also worked for a time with the engineering department of the state of Washington.

Other recent deaths include: CLARENCE B. GEORGE, 40, engineer and draftsman at the Puget Sound Navy Yard, Bremerton, Wash., Seattle; JOHN M. HALL, 79, retired building contractor, Seattle, Wash.; JOHN MOROFF, 79, building contractor, Kankakee, Ill.; CHARLES LERNER, 81, retired builder of Miami, Fla., in New York City; JAMES H. LANE, 70, superintendent of bridges at New Haven, Conn., for 25 years, New Haven; F. M. TALIAFERRO, SR., 77, retired railroad contractor, Louisville, Ky.; WILLIAM C. LANTZ, retired contractor of Kearney, Nebr., at Excelsior Springs, Mo.; J. A. GRANQUIST, 82, contractor, Stillwater, Minn.; CHARLES L. CHRISTOPHER, 90, superintendent of construction for the Louisville Ry. until his retirement in 1928, Los Angeles, Calif.; EARLE O. SWEET, 60, resident engineer for the Birmingham Water Works Co. for the past 27 years, Bay Minette, Ala.; C. PHILLIPS, 70, former Birmingham contractor, and a member of the firm of Nixon & Phillips, Lineville, Ala.; W. E. REARDON, 58, general construction superintendent, Columbian Gasoline Corp. and the Col-Texo Corp., and E. R. MAYNARD, 60, general contractor, Birmingham, Ala.

Photo by R. A. Wurgel

FOUNDATIONS FINISHED FOR VLADECK HOUSES IN NEW YORK

LAST WEEK ceremonies marked the start of superstructure work on New York's Vladeck City Houses, the country's first purely municipal housing project. The city's unique plan (*ENR*, June 30, 1938, p. 891) authorizes the New York City Housing Authority to issue bonds to be serviced from the proceeds of an occupancy tax levied last fall on rented business properties.

This project will be a $2,000,000 development in Manhattan's lower East Side; it will house about 270 low-income families.

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Texas Highway Body Has Big Year

The last fiscal year of the Texas State Highway Department has been most important in its history from the standpoint of amount of highway construction and improvements, according to report just issued. During the year a total of $48,000,000 was spent.

Contracts for $31,000,000 were awarded on 786 projects for 2,480 miles of construction which included 385 miles of grading and small structures, 750 miles of gravel, caliche and other surfacing, 1,230 miles of asphalt surfacing, 110 miles of concrete and brick pavement. Also $287 was spent for planning and $420,000 for landscape projects. Bridge expenditures were $4,000,000 for large bridges and $2,600,000 for underpasses and overpasses.

Since creation of the Texas department in 1924, the state road system has been extended from 18,000 miles with only 4,000 miles of surfaced roads, to 22,000 miles.

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Sale of Bonds Approved For Niagara Bridge

A contract for the sale of bonds at the rate of 94 cents on a dollar to the Stranahan, Harris & Co., New York City, for the new international bridge to span the Niagara River at Niagara Falls, has been approved by the attorney general of New York. Sale of the bonds, which are being sold by the Niagara Falls Bridge Commission, must also be approved by the state comptroller.

Edward P. Lupfer, consulting engineer of Buffalo, said that construction could start in January as a result of approval of the sale.

When bids were first opened for the work Sept. 26 at Buffalo, no bids were received (*ENR*, Oct. 5, 1939, p. 445).

CONSTRUCTION REPORTS

Compiled by BUSINESS NEWS DEPARTMENT
Engineering News-Record, 330 W. 42nd St., New York
ELSIE EAVES, MANAGER
(Daily service also available—Write for details)

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks, $15,000; other public works, $25,000; industrial buildings, $40,000; other buildings, $150,000.

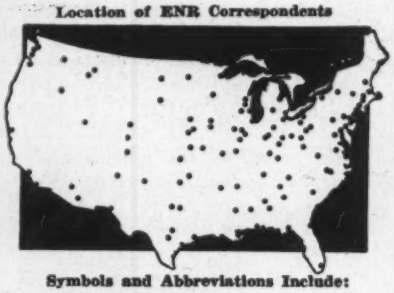
Classes of Construction
(Named in order of Listing)

Water Supply	Unclassified
Sewers, Waste Disposal	Materials, Equipment
Bridges, Grade Cross'gs	Public Buildings
Streets & Roads	Commercial Buildings
Earthwork, Waterways	Industrial Buildings

Stages Reported

PROPOSED: (except Streets & Roads); BIDS ASKED (new announcements only. For full calendar, see also preceding issues of ENR); LOW BIDDERS ($500,000 projects and over); CONTRACTS AWARDED

Location of ENR Correspondents



Symbols and Abbreviations Include:

† Federal Government
★ Project of $500,000 or over
ENR Engineering News-Record
CD McGraw-Hill Construction Daily

WATER SUPPLY

PROPOSED WORK

★**Fla., Miami** — City Comrs., exten. c.i. watermains in new residential districts, $1,000,000; replacing wooden watermains to Coconut Grove with new mains, $1,300,000.

Ill., Elizabeth—Plans election to vote on imprv. on city WW.

Mass., Boston—Commonwealth of Massachusetts Metropolitan Dist. Water Supply Comn., R. N. Molt, secy., 20 Somerset St., Contr. 99, enlarging Fells high level distr. reservoir, consisting 2 storage basins, adjacent to and connecting with existing reservoir, constructing earth embankment dams to form these basins, access roads, valve and blow-off chambers, drainage piping and other appurtenant works and connections, fence around entire completed reservoir, at Stoneham, Malden and Melrose. **$300,000.** K. R. Kennison, c/o owner, ch. engr.

Mich., Adrian—$175,000 bond election Dec. 12, water sys. addns. and imprvs. H. E. Smith, supt. Water Bd.

Minn., Moorhead—Water & Light Bd., F. Wenzel, pres., authorized construction 1 m.g. water storage tank. $25,000. R. G. Price, city clk. CD 8/23—ENR 8/31.

Miss., Kosciusko—L. S. Sanders, mayor. $70,000 bond election, Dec. 11, WW and electric light plant.

N. J., Clementon—Camden Co. and Clementon Boro, removing, constructing, watermains, etc., various streets. $24,661. WPA. P. Costello, 3 and Arch Sts., Camden, WPA and owner's engr.

N. J., Sayreville—2,760 ft. 6 in. c.i. pipe for fire protection, 8 in. vitr. tile sewer pipe various streets, $17,927. WPA. J. H. Weitzen, Smith and Hobart Sts., Perth Amboy. WPA and owners, engr.

N. J., Spring Lake—New well at city WW. $27,000. Engineer not appointed.

N. J., Trenton—Watermains for USHA housing project. $41,450. WPA. W. D. Congle, 1102 S. Broad St., Trenton, WPA and owner's engr.

N. Y., Binghamton—Additional watermains, Campbell Rd., Hanley Pl., Frederick, Merritt and La Mont Sts., Berwick, Baltimore, Phinn and Seymour Aves. Over $15,000. J. A. Giles, City Hall, engr.

★**O., Cincinnati**—Imprv. California WW pump. plant, installing 4 electric centrifugal pumps. $1,728,000. H. H. Kranz, city engr.

O., St. Marys—Bids in 30 days, 10 in. watermain from end of present water distr. sys. to proposed site of new factory units of Goodyear Tire & Rubber Co. $20,000.

O., West Milton—Voted $25,000 bonds, WW imprvs., water tower and water softening and purification plant. CD 9/8—ENR 9/14.

O., Willshire—WW and distr. sys. $34,000. C. J. Simons, 638 Hampton Ave., Toledo, consult. engr. CD 10/27—ENR 11/2.

Okla., Luther—Drilled well sys., elevated tank and distr. sys. $32,000. H. T. Lawrence, 3244 W. 14 St., Oklahoma City, engr.

Okla., Stillwater—Voted $31,650 bonds, for new filter plant; $48,825 bonds for new impounding reservoir water supply; $21,000 bonds water main distr. sys. exten. G. H. Randleman, Stillwater, engr. CD 11/21.

Okla., Weleetka—Making surveys new impounding reservoir water supply to augment to present supply. $30,000. May call bond election. R. Collins, Checotah, engr.

Okla., Wellston—New drilled well, pump motor and water-main extens. $17,000. Alexander & Pollard, Terminal Bldg., Oklahoma City, engrs.

Pa., Cranesville—Boro, watermain distr. sys. throughout boro to tie-in with municipal water supply of nearby Albion. $50,000. Hill & Hill, 24½ N. Main St., North East, engrs.

Tex., Paris—J. M. Crook, mayor, bond election Dec. 5, WW sys. exten. $25,000. W. F. Hicks, city engr.

Alta., Edmonton—Exten. watermains to Beaulah Institution. $15,000. A. W. Haddow, City Hall, engr.

Ont., Garson—International Nickel Co., Sudbury and Falconbridge Mines Ltd., pipe line sys. and pump. facilities, bringing water from Lake Wahnapitae to Garson Mine. $60,000. International Nickel Co., Sudbury, engrs.

BIDS ASKED

Bids Asked December 5

†Minn., Little Falls—U. S. E. Property & Disbursing Officers, Camp Ripley 100,000 gal. elevated steel water tank and painting, altering existing tank, at Camp Ripley State Military reservation.

Bids Asked December 6

†Va., Quantico—Yards & Docks, Navy Dpt., Wash., D. C., c.i. watermains at Marine Barracks, Sched. $359.

Bids Asked December 7

Tex., Electra—A. B. Corder, mayor, imprv. WW sys. $15,000. J. E. Ward, Wichita Falls, engr.

Bids Asked December 8

Ia., Newhall—WW sys. $18,000. H. R. Green Co., 417 First Ave. S.E., engrs. CD 11/8—ENR 11/16.

Bids Asked December 11

Calif., Ventura, Calif.—Chlorinator sys. in water treatment plant. Over $15,000. C. Froerer, City Hall, engr.

Ill., Chicago—O. E. Hewitt, comr. P. Wks. west substructure of South Dist. Filtration Plant, vicinity 79 St. and Lake Michigan; adv. ENR 11/30.

Bids Asked December 13

†Fla., Pensacola—P. Wks. Officer, Naval Air Base, Pensacola water distr. sys., Spec. 9469, at Felton Air Base.

Neb., Burchard—J. Craig, village clk., Sect. 1, 25,000 gal. steel tank on 70 ft. tower, etc. $14,123—$16,398. Henningson Engr. Co., 1904 Farnam St., Omaha, engrs. CD 11/15—ENR 11/23.

Bids Asked December 18

N. C., Greensboro—C. M. Smedberg, city mgr., 6 m.g.p.d. addn. to water filtration plant, building addn., basins, filters, piping, dry feed and other chemical and control apparatus.

Bids Asked December 22

†Ill., Chanute Field (Rantoul)—Con. Q.M., Chanute Field, water pump. and treatment plant; adv. ENR 11/30.

CONTRACTS AWARDED

Calif., Los Angeles—Dpt. Water & Power, D. P. Nicklin, purch. agt., 207 S. Bway., furnishing, erecting 405,000 gal. welded steel water tank, Spec. 2986, to American Pipe & Steel Co., 230 Date Ave., Alhambra, $7,195. Est. over $15,000. Bids 10/24, awarded 10/26. CD 10/18.

Calif., San Francisco—Public Utilities Comn., City Hall, laying 6 and 8 in. c.i. watermains in Vista Del Mar Subdivision to San Francisco Water Dpt., 425 Mason St. $3,901. (municipal unit). City furnishes pipe and fittings. CD 11/14—ENR 11/16.

★**Ill., Chicago** — O. E. Hewitt, Comr. P. Wks., east substructure South Dist. filtration plant in vicinity 79 St. and Lake Michigan, to Michael Pontarelli & Son, 4248 N. Kilpatrick St. **$3,616,650.** Bids 10/31 (**Correction,**—contract price). CD 11/1—ENR 11/9, under CA.

Ill., Herrin—G. Anderson, city engr., c.i. watermains, manholes, transmission lines to Henry Reese & Sons, Inc., Quincy $13,370. Bids 10/23. CD 10/19

Ill., Willisville—O. P. Lively, city clk., WW imprvs. deep well, pump. equip., distr. mains. **WPA. $39,000.** Bids soon on deep well. G. B. Davis, Chester, engr. CD 11/10—ENR 11/16.

La., Hammond—Extend. water and sewerage in several sections, own forces. $50,000. J. M. Fourn, Hammond, engr.

Minn., Montrose—T. A. Thoreson, village clk. WW sys. **WPA. $25,000.** $31,000 bonds voted. CD 9/27—ENR 10/5.

Neb., Wymore—E. L. Purdy, city clk., tank and tower, to Omaha Steel Wks., 609 S. 48 St., Omaha, **$19,419.** CD 5/11—ENR 5/18.

N. J., Deepwater — Lower Penns Neck Twp., Twp. Hall, Pennsgrove, excavating, c.i. watermains, hydrants, in various streets. **WPA. $29,954.** P. Costello, 3 and Arch Sts., Camden, WPA and owner's engr.

N. J., Greenwich—6 in. watermains and manholes in various streets. **WPA. $26,922.** P. Costello, 3 and Arch Sts., Camden, WPA and owner's engr.

N. J., Hightstown—Auxiliaryy watermains, various streets. **WPA. $46,604.** W. D. Congle, 1102 S. Broad St., Trenton, WPA and owners, engr.

N. J., Trenton—Imprv. water utilities in old canal site. **WPA. $39,312.** W. D. Congle, 1102 S. Broad St., Trenton, WPA and owner's engr.

N. J., West Deptford—4, 6 and 8 in. watermains, various streets. **WPA.** $64,907. P. Costello, 3 and Arch Sts., Camden, WPA and owner's engr.

N. Y., Elmira—Elmira Water Bd., H. M. Beardsley, mgr., City Hall, c.i. watermains, in portions 9 city streets, own forces under supervision of owner's engineers. $22,000 plus. CD 11/20—ENR 11/23.

N. Y., Oswego—Constructing, lowering watermains and services, paving streets afterwards. **WPA. $50,000.**

N. Y., Rochester—Additional structures at water supply plant. **WPA. $25,000.** CD 9/20—ENR 9/28.

N. Y., Watertown—Installing watermains, hydrants and copper services, 4 and 5 Wards. **WPA.** Over **$50,000.**

N. C., Bakersville—Comrs. Mitchell Co., imprv. water supply sys. and water shed area. **WPA. $16,729.** E. Mc Bee, Spruce Pine, chn.

N. C., Red Springs—Red Springs Weaving Co., Inc., Contr. 2, general construction WW and sewerage sys., to Boyle Road & Bridge Co., Sumter, S. C., **$16,886***** Contr. 1, tanks, to R. D. Cole Mfg. Co., Newman, Ga., **$4,535***** Contr. 1, plumbing, to McGirt Plumbing & Electric Co., Laurinsburg, **$9,423.** Grand total **$30,844.** Bids 11/22. CD 11/14—ENR 11/16.

N. D., Killdeer—Water sys. imprvs. WPA. **$9,777.** E. J. Hoel, city aud.

O., College Corner—Standpipe, to Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, Pa., distr. sys., to G. H. Leach, DeGraff. Total est. **$41,000.** Bids 11/13. CD 10/23—ENR 10/26.

Okla., Bartlesville—Watermain extens. and lowering existing mains. **WPA. $30,069.** J. E. McCormick, Bartlesville, engr.

Okla., Hitchcock—Well supply and complete distr. sys., **WPA.** CD 10/31—ENR 11/2.

Okla., Lawton—Watermain extens. **WPA. $22,000.** W. B. Henricks, Lawton, engr.

Okla., Porter—Lowering existing watermains and exten. sys. **WPA. $14,056.** W. H. Sindt, Old Court House, Oklahoma City, engr.

CONTRACT UNIT PRICES

What contractors are bidding on different kinds of construction work

FRANKLIN FALLS DAM NEW HAMPSHIRE

OWNER: U. S. Engineer Office, Boston, Mass., Col. A. K. B. Lyman, District Engineer.

PROJECT: Construction of Franklin Falls Dam on Pemigewasset River, a tributary of the Merrimack River (Merrimack Valley Flood Control), about 2½ miles north of Franklin, Merrimack County, N. H. Flood control dam to be of rolled-earth and rock-paved type, about 1,700 ft. long at top, with maximum height above stream bed of 130 ft. Top width 35 ft. Embankment to be constructed of selected compacted pervious materials from required structure and channel excavation and from borrow areas with dumped rock shell and toe, and will have an impervious compacted core and upstream blanket. Spillway channel cut in earth and rock with gravity-type Ogee control section 550 ft. long, on west bank of river. Outlet works consist of concrete intake structure, twin horseshoe-shaped concrete conduits, concrete-lined stilling basin, and operating house. Approach and discharge channels to be excavated. Eight service gates and two emergency gates with operating mechanisms to be installed in control structure. Road across dam and steel truss bridge provide access to operating house.

CONDITIONS: Contractor to furnish all materials and complete project by June 30, 1942. Transportation facilities include first class highway, and abandoned branch line of Boston and Maine Railroad, which with minor repairs can be made usable. Wage rates specified are: skilled, $1.00 to $2.00 per hr.; semi-skilled, 50c. to $1.00; and common, 45c. per hr.

BIDS: Eight bids were opened August 9, 1939, ranging from the contract low of $4,265,853 to $5,456,960. Engineer's estimate $4,638,183.

LOW BIDDERS:

1. Coleman Bros. Corp., Boston, Mass. (contract) $4,265,853
2. B. Perini & Sons, Inc., Framingham, Mass. 4,375,134
3. Arthur A. Johnson Corp., Necaro Co., Inc., Long Island City, N. Y. 4,602,000

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Field office	L.S.	$28,000.00	$15,000.00	$20,000.00
2. Remove existing struct.	L.S.	15,000.00	1,000.00	2,500.00
3. Divert river; pump cofferdam	L.S.	100,000.00	150,000.00	310,000.00
4. Strip damsite	250,000 c. y.	.50	.35	.37
5. Common excav. above El. 301	1,887,000 c. y.	.22	.35	.24
6. Common excav. below El. 301	739,000 c. y.	.33	.35	.45
7. Stripping borrow Areas A, B, C	215,000 c. y.	.50	.20	.30
8. Excav. and haul, borrow area A	300,000 c. y.	.42	.60	.57
9. Same, borrow area B	550,000 c. y.	.22	.20	.22
10. Same, borrow area C	185,000 c. y.	.26	.25	.24
11. Rock excav., above El. 301	315,000 c. y.	1.65	1.75	1.45
12. Rock excav., below El. 301	75,000 c. y.	5.50	1.75	2.25
13. Struct. backfill, uncompacted	10,600 c. y.	.13	.60	.10
14. Struct. backfill, compacted	12,700 c. y.	.35	.75	.12
15. Rolled fill, pervious	1,952,000 c. y.	.07	.12	.12
16. Rolled fill, impervious	300,000 c. y.	.08	.14	.12
17. Rock fill	575,000 c. y.	.15	.40	.40
18. Hand-placed riprap	13,200 c. y.	3.00	1.32	2.15
19. Derrick stone	2,600 c. y.	3.50	3.40	1.85
20. Gravel, filters and backing	115,000 c. y.	1.00	1.00	1.77
21. 8-in. gravel drain	7,700 l. f.	1.00	.60	.65
22. Sand for filters	81,000 c. y.	.75	.80	1.15
23. Line drilling, rock excav.	68,000 s. f.	1.50	.40	.50
24. Drill holes, rock; pres. grout	5,700 l. f.	1.00	.50	.35
25. Same, for grouting anchors	3,000 l. f.	.50	.75	.85
26. Pressure grouting	2,300 c. f.	1.00	1.00	.95
27. Furnishing cement	87,000 bbl.	2.40	3.00	2.70
28. Conc., intake struct., cond. transition, bridge piers	18,000 c. y.	8.50	11.00	10.00
29. Concrete in conduits	8,800 c. y.	18.00	11.00	10.00
30. Conc. in outlet approch. channel walls, spillway walls, weir	29,500 c. y.	8.50	7.00	6.00
31. Concrete in bridge deck	90 c. y.	20.00	22.50	22.00
32. Conc. in steps, trash bars, grout recesses, and misc. wk.	1,200 c. y.	18.00	10.00	8.00
33. Conc. in stilling basin	18,500 c. y.	9.00	7.00	9.00
34. Reinforcing steel	2,051,000 lb.	.03	.04	.04
35. Service bridge metal	168,000 lb.	.07	.10	.07
36. Wr. iron and steel trash bars	169,000 lb	.14	.10	.20
37. Cast iron conduit liners	624,000 lb.	.08	.09	.12
38. Water level recorder sys.	L.S.	3,000.00	1,500.00	4,000.00
39. Sheet metal	14,000 lb.	.14	.20	.19
40. Miscellaneous metal	105,000 lb.	.11	.12	.12
41. Copper water stops	6,000 lb.	.50	.30	.50
42. Hand-rail, stilling basin	300 l. f.	.350	3.50	3.45
43. Service bridge railing	L.S.	3,000.00	3,500.00	7,000.00
44. 18-in. corr. iron pipe	270 l. f.	4.00	2.00	3.60
45. Piezometers, settlement gages, observ. and auxil. wells	L.S.	20,000.00	5,000.00	16,000.00
46. Tile gages	120 l. f.	5.00	5.00	4.50
47. Operating house superstr.	L.S.	50,000.00	50,000.00	95,000.00
48. Gates, guides and hoists	L.S.	150,000.00	150,000.00	195,000.00
49. Crane	L.S.	10,000.00	10,000.00	15,000.00
50. Gasoline-elec. generator set	L.S.	4,000.00	4,000.00	8,000.00
51. Misc. oper. hse. equip. and piping	L.S.	5,000.00	6,000.00	9,000.00
52. Electr. conduit and supports	L.S.	4,500.00	4,000.00	7,000.00
53. Elect. power and lighting sys.	L.S.	8,000.00	7,000.00	16,000.00
54. Gravel surface, roadway	8,000 s. y.	.50	.35	.60
55. Bitum. surface. treat'mt, roadway	6,000 gal.	.13	.20	.14
56. Highway guard rail	5,000 l. f.	.70	.90	.60
57. Cobble gutters	2,300 l. f.	1.00	.80	.80
58. 12-in. pipe drains	170 l. f.	2.00	1.00	1.32
59. Top soil	25,000 c. y.	.25	.75	.55
60. Seeding	30 ac.	200.00	200.00	300.00

HIGHWAYS, FLORIDA

OWNER: Florida State Road Department, Tallahassee; J. H. Dowling, Chief Engineer.

PROJECT: Constructing 11.73 miles of 30-ft. graded earth roadbed; approximately 7 miles of 6-in. sand bituminous road mix pavement 20-ft. wide, beginning at Wilma and proceeding north as far as funds will permit; one treated timber bridge consisting of three 15-ft. spans on treated timber pile bents with timber stringers and floor.

CONDITIONS: Time to complete, 300 working days. Contractor to furnish all materials. Wage rates on project are: skilled, 75c. per hr. minimum; semi-skilled, 45c. minimum; and unskilled, 30c. per hr. minimum.

BIDS: Ten bids were received October 3, 1939, ranging from the contract low of $164,301 to $184,749.

LOW BIDDERS:

1. Faulk & Coleman, Cocoa, Fla. (contract) .. $164,301
2. Manly Constr. Co., Ocala, Fla. 166,069
3. C. G. Fuller, Barnwell, S. Car. 169,914

Item	Quan.	Unit Prices (1)	(2)	(3)
1. Clear and grub	201.9 ac.	$135.00	$75.00	$200.00
2. Regular excavation	114,781 c. y.	.36	.35	.25
3. Lateral ditch excav	680 c. y.	.40	.50	.25
4. Sand bitum. road mix	82,143 s. y.	.23	.24	.25
5. Bitum. matl. SBRM, cut back asph.	492,858 gal.	.11	.14*	.13
6. Cl. A. conc., culvert	73.8 c. y.	30.00	30.00	20.00
7. Cl. A conc., endwalls	151.3 c. y.	32.00	30.00	20.00
8. Treated struct. timber	15.7 M.b.m.	150.00	150.00	120.00
9. Untr. struct. timber	.3 M.b.m.	100.00	150.00	80.00
10. Reinforcing steel	9,137 lb.	.06	.05	.05
11. Corr. galv. met. pipe culv., 18-in.	90 l. f.	2.50	2.00	2.00
12. Corr. galv. met. pipe culv., 24-in.	106 l. f.	3.50	3.00	3.00
13. Relay 21-in. cross drain pipe	125.5 l. f.	1.15	1.00	1.00
14. Relay 24-in. cross drain pipe	220 l. f.	1.25	1.00	1.50
15. Relay 30-in. cross drain pipe	450.5 l. f.	2.00	1.50	2.00
16. Relay 15-in. side drain pipe	60 l. f.	.90	.75	1.00
17. Relay 18-in. side drain pipe	30 l. f.	1.00	.75	1.00
18. Treated timber piling	810 l. f.	1.40	1.50	1.20
19. Project markers, complete	2 ea.	15.00	10.00	10.00
20. Guard rail, Flexplate	768 l. f.	1.40	1.50	1.10
21. Sprigging	270,500 s. y.	.03	.03	.02

* Coal tar

Water Supply (Continued)

Okla., Red Rock—Lowering existing watermains, WPA. $17,000. W. H. Sindt, Old Court House, Oklahoma City, engr.

Pa., North East—Boro, large tunnel to drain municipal water supply reservoir, WPA, under supervision of Hill & Hill, engrs., 24½ Main St., engrs. Work started.

Tex., Jacksonville—A. E. Garner, city mgr., WW sys. imprvs. "Purchase and Hire" plan. $20,000. WPA. CD 10/20—ENR 10/26.

Wis., Monroe — Pumps, pumphouse and reservoir, to Fairbanks Morse & Co., 600 S. Michigan Ave., Chicago, Ill., $9,995, and E. A. Carlson, 420 Gorham, Madison, $8,612. Mead, Ward & Hunt, Madison, engrs. Bids 10/30.

B. C., Salmon Arm—Replacing watermains, pipe, to Gordon & Belyea Ltd., 101 Powell St., Vancouver; installation, to Bennett & White Constr. Co., Ltd., 510 W. Hastings St., Vancouver. Est. $15,000. CD 3/8—ENR 3/16.

Ont., Beamsville—WW imprvs., drilling well, installing pump, pipe, etc., to E. F. Roberts & Co., Ltd., 7 Holme St., Brantford. CD 11/21.

Ont., Fort Francis—G. Henry, city comr., Town Hall, material supply contracts for WW sys., to Anthes Fdry., Ltd., 7 Sask Ave., Winnipeg, Man., and Crane, Ltd., 600 Simpson St., Fort William. Installation by day labor, under supervision engineer. Est. $20,000.

Ont., Weston—7,500 ft. 12 in. watermains in James and Wilson Sts., to P. J. Acri & Co., 28 Grove St., Toronto, $24,000. Est. $25,000. Bids 5/23. CD 5/19.

SEWERS, WASTE DISPOSAL

PROPOSED WORK

★**Calif., Los Angeles**—Bd. P. Wks. approved sewage disposal sys., recommended by special advisory committee, and referred to city engineer. Immediate projects proposed amount in cost to $18,060,000, incl. new treatment plant at Hyperion Ave., $7,050,000; repair central and north outfall sewer lines, $1,360,000; new submarine ocean outfall, 5,000 ft. long, $1,000,000; 2 new treatment plants, 1 in San Fernando Valley, and 1 near city of Vernon, $8,650,000; future work recommended, incl. new main outfall sewer, $6,000,000; new treatment plant, in Baldwin Hills, $4,330,000. Total est. $28,390,000. Engineers S. A. Greeley, 6 N. Michigan Ave., Chicago, Ill., C. G. Hyde, Berkeley, and F. Thomas, Pasadena, recommended work. L. Aldrich, city engr. CD 7/24—ENR 7/27.

Calif., Strathmore — Completing surveys, sewerage sys. $60,000-$70,000. L. H. Gadsby, Visalia, engr.

★**Fla., Miami** — Sewer extens. and sewage disposal plant. $5,000,000. Engineer not appointed.

Ind., South Bend—Bd. P. Wks., Ironwood, interceptor sewer. $116,147. C. E. Williams, City Hall, city engr.

★**Mass., Boston**—Commonwealth of Massachusetts, Metropolitan Dist. Comn., Sewer Div., J. P. Dever, ch. engr., 20 Somerset St., Boston, preliminary studies in progress, pumping and disposal station with equip. and appurtenances, $4,160,000; pump. and disposal station with equip. and appurtenances, $3,050,000. Projects approved by Legislature. Greeley & Hansen, 6 N. Michigan St., Chicago, Ill., and Metcalf & Eddy, 1300 Statler Bldg., Boston, consult. engrs. CD 2/8—ENR 2/16.

Mo., St. Louis County—Lackland Sanitary Dist. of St. Louis County, sanitary sewerage system in section bounded by Lackland and Brown Rds., Flora and Bryant Aves, vicinity of Overland. $138,000. Plans $34,500 bond election soon and will apply for $103,500 WPA gr. E. A. Fulton, 3 S. Meramec Ave., Clayton, St. Louis, engr. District incorporated by St. Louis County Circuit Court.

Neb., Kearney — Surveys sewage disposal plant. $40,000. Douglas McKnight, 1110 S. 35 St., Lincoln, engr.

N. J., North Brunswick—Force sewer main and vitr. tile gravity sewer line with appurtenances, George Rd., Allen Ave, and Elkins Lane. $43,319. WPA. J. H. Weitzen, Smith and Hobart Sts., Perth Amboy. WPA and owner's engr.

N. J., Somerdale—Sewage disposal plant and pump. sta. $305,343. WPA. P. Costello, 3 and Arch Sts., Camden, WPA and owner's engr.

N. J., Union—Vitr-tile sanitary sewers, manholes, appurtenances, various streets. $31,666. WPA. J. H. Weitzen, Smith and Hobart Sts., Perth Amboy, WPA and owner's engr.

N. Y., Dobbs Ferry—Bd. Trustees, surveys installing additional sanitary sewers, Bway. Over $25,000. Engineer, c/o owner.

N. Y., Jamestown—Storm sewers, various parts of city. $24,473. L. L. Graham, city engr.

N. Y., Mexico — Surveys sewage disposal plant. Over $25,000. Engineer, c/o owner.

★**N. Y., Springville** — Voted to construct sewage disposal plant, near here. $668,000. F. Wing, c/o owner, engr. CD 11/20—ENR 11/23.

N. Y., Utica—Dpt. P. Wks., City Hall, 72 and 36 in. sewers along Grace Creek, across New York Central R.R. Co. and Mohawk Cotton Mills property. $44,310. J. B. Shaw, city engr.

N. C., Rocky Mount—C. F. Chasen, city engr., special election to vote bonds, incinerator and disposal plant. $300,000. Engineer not appointed.

O., Gnadenhutten—Voted $35,000 bonds, installing sanitary sewerage sys. $130,000. CD 9/21—ENR 9/26.

O., Kent—Defeated bonds, sewers. $95,000. J. G. Osborne, city engr. CD 9/5—ENR 9/7.

O., Mt. Gilead—J. P. Bennett, mayor, sewage disposal plant. Over $25,000.

Okla., Carmen—Made preliminary plans sanitary sewerage sys. and sewage disposal plant. $30,000. C. W. Hopps, Fairview, engr.

Okla., Laverne — Made preliminary plans sanitary sewerage sys. and sewage disposal plant. $28,000. A. Montgomery, Beaver, engr.

Ont., Picton—Sewerage sys. $25,000. James Hicks, Town Hall, engr.

Ont., Paris — Sewerage sys. and extens. $30,000. G. H. Richards, Brantford, engr.

Ont., St. Marys — Sewerage sys. $30,000. Dpt. Health, Toronto, engrs.

Ont., Frankford—Sewerage sys. and disposal plant. $60,000. Ontario Dpt. Health, Toronto, engrs.

★**Ont., Kingston** — $957,000 bond election Dec. 4, trunk sewers, sewage disposal plant and water filtration plant. H. S. Dick, City Hall, engr.

Ont., St. Catherines—Municipality and Dominion Dpt. Transport, Ottawa, Ont., sewage disposal works. Over $25,000. A. McPhail, City Hall, engr.

Ont., Sudbury—R. H. Martindale, estimates and plans underway outfall sewer to carry effluent from municipal plant for disposal in lake.

Ont., Windsor—C. V. Waters, city clk., sewerage sys., Ward 3. $61,000.

★**Ont., Toronto** — $12,000,000 bond election Jan. 1, sewage disposal plant. Gore & Storrie, 1130 Bay St., engrs.

BIDS ASKED

Bids Asked December 5

Wis., Greenfield—Vitr. clay sanitary sewer. $25,000. H. C. Webster, 739 N. 2nd St., Milwaukee, engr.

Bids Asked December 6

Mo., University City (St. Louis P.O.)—Sewers, laterals, inlets, catch-basins, manholes, necessary junctions, Sewer Dist. 69. $39,115. W. A. Heimbuecher, City Hall, 6801 Delmar Blvd., engr.

Bids Asked December 7

N. Y., Yonkers—Bd. Contr. & Supply, City Hall, house and storm sewers in Hunter, Page and Homewood Aves. and in lands of Westchester Co. Park Comn. $34,665. PWA. C. Sheridan, city engr.

Bids Asked December 11

Conn., New London—T. Fitch, city purch. agt., City Hall, sewage treatment plant, Contr. 5, plumbing, Contr. 6, heating and ventilating, Contr. 7, sludge cake conveyor, Contr. 8 air compressor sys. $25,000. Solomon & Keis, 257 Bway., New York, engrs.

CONTRACTS AWARDED

Calif., San Francisco—S. J. Hester, secy. Dpt. P. Wks., City Hall, replacements for Ingleside sewer, 598 lin. ft. 4 ft. 6 in. circ. rein.-con. sewer, etc., to Eaton & Smith, 715 Ocean Ave., San Francisco. $11,640. Bids 11/15. CD 11/8.

Colo., Colorado Springs—Storm and sanitary sewers, channel construction for drainage, WPA. $265,560.

Conn., New London—T. Fitch, city purch. agt., City Hall, New London, Contr. 1, sewage disposal plant and pump. sta., to N. Benvenuti & Sons, 6 Elm St., $300,710***Contr. 2, garbage incinerator, to George Allen & Son, 285 E. 45 St., New York, $55,976***Contr. 3, sludge incinerator, to Nichols Eng. & Research Corp., 60 Wall St., New York, $70,300. Grand total $426,986. Bids 10/23. CD 9/20—ENR 9/28.

Ia., Council Bluffs—Storm sewers, WPA, $20,000. J. Boyne, city engr.

Ia., Iowa City—Additional city sewerage sys., WPA. Over $25,000.

Ia., Sidney—Sewerage sys. of varying sizes, WPA. $75,000. Buell & Winter, 508 Insurance Exchange Bldg., Sioux City, engrs. CD 11/9—ENR 11/16.

Kan., Marysville—Sewers, WPA. $16,000.

Kan., Topeka—Storm sewers, WPA. $100,000.

Md., Hagerstown—City, City Hall, storm water drains, and sanitary sewers. WPA. $131,846.

Mass., Fall River—P. Wks. Dpt., City Hall, incinerator plant, to Nichols Eng. & Research Corp., 60 Wall Tower, New York, about $75,000. Tentative award. CD 10/18—ENR 10/26.

Minn., Ivanhoe—E. C. Gillis, city clk., sanitary sewerage sys. and disposal plant, WPA. $50,400. $17,500 bonds voted.

Mo., University City (St. Louis P.O.)—A. J. Schopp, city clk., Sect. 2, Rock Island public relief sewers, to Samuel Kraus Co., 649 Edmund Ave., St. Louis. $103,909. Est. $140,444. Bids 11/15. CD 11/9.

Neb., Fairmont — Sanitary sewer. WPA. $21,400. CD 5/11—ENR 5/19.

N. J., Haddon Twp.—Haddon Twp., Twp. Hall, Westmont, sewage disposal plant. WPA. $282,215. P. Costello, 3 and Arch Sts., Camden, WPA and owner's engr.

N. J., Springfield—Excavating, storm sewers, repaving streets Cain St., Riverside, S. Maple, Meisel and Linden Aves. WPA. $27,780. CD 1/26—ENR 2/2.

N. Y., Auburn—Sanitary sewers along Mattie, Genesee and Wadsworth Sts., WPA. $25,000.

N. Y., Auburn—Additional storm sewers from Chase to York Sts., WPA. $25,000.

N. Y., Buffalo—7,868 lin. ft. rein.-con. sewer, Emslie Dist, WPA. Over $300,000.

N. Y., Dunkirk—Installing 1,844 lin. ft. sanitary sewer lines, Central Ave. and E. Pine St., WPA. Over $25,000.

N. Y., East Islip—Additional sewer project, consisting of 800 lin. ft. 36 in. drains, 8,218 lin. ft. 18 and 24 in. storm drains, various streets, WPA. $50,000.

N. Y., Newburgh and Johnson City—Septic tank, drainage sys., sanitary sewers, WPA. Over $25,000.

N. Y., North Tonawanda—Sanitary, storm and combined sewers with manholes, various streets, WPA. $50,000.

★**N. Y., Rochester**—Dpt. P. Wks., City Hall (1st unit), sewer program, consisting 5,466 lin. ft. 12- to 51-in. concrete pipe, Clifford Ave., WPA. Job 1. Est. $268,000. Total est. $2,028,000. CD 11/6—ENR 11/9.

N. Y., Salina—Sanitary sewers, manholes, laterals, concrete cradles, WPA. Over $50,000.

N. Y., Spring Valley—Village, imprv. sewage treatment plant in Clarkstown, WPA. Over $35,000.

N. Y., Utica—Storm sewer, Edward and Schuyler Sts., replacing sidewalks afterwards, WPA. $25,000.

N. Y., Yonkers—Bd. Contr. & Supply, City Hall, house and storm sewer in Littlejohn Pl., Mile Square Rd., and Homewood Ave., to J. Mucci, Algonquin Rd. $46,902. C. Sheridan, city engr.

N. Y., Yorkville—Storm sewers and manholes in Erie St., Myers and Trolley Aves., WPA. $25,000.

N. C., Greensboro—C. W. Smedberg, city mgr., sanitary sewerage disposal and water sys. in Bessemer Sect., WPA. $149,694. H. L. Medford, city engr.

N. C., Roxboro—C. M. Abbitt, city engr., exten. sewers WPA. $22,000.

★**O., Cleveland**—16 mi. sewer lines for airport and West Park Dists., relief labor. $600,000. J. C. Wenrick, city engr.

O., Delaware—Sanitary and storm sewers, various locations, WPA. $36,000. G. S. Erwin, city engr.

O., Newark—Series of trunk sewers in various parts of city, sewage disposal plant, WPA. $360,000. C. H. Wells, city engr. CD 10/27—ENR 11/2.

Pa., Pittsburgh—F. M. Roessing, dir. Dpt. P. Wks., Contr. 5, relief sewer, to Kelly Constr. Co., 7337 Kelly St. $71,578. Bids 9/28. CD 9/20.

Tex., Dallas—J. W. Aston, city mgr., exten. sewer lines, several city streets, WPA. $23,800. E. A. Baugh, dir. P. Wks.

Tex., Irving—C. P. Caldwell, mayor, storm sewers 6 and Jefferson Sts., WPA. $33,600.

Tex., Uvalde—J. H. Ashby, Jr., mayor, imprv. existing sanitary sewerage sys., removing present sludge and concrete vats, disposal plant rebuilding on new site, enlargement of disposal plant, new collecting lines, "Purchase and Hire," $69,081. WPA.

†**Wash., Fort Lewis**—Con. Q. M., McChord Field, 8 mi. sanitary sewers, to West Coast Constr. Co., Lloyd Bldg., Seattle, $96,340, sewage pump. plant, to University Plumbing & Heating Co., 3939 University Way, Seattle, $22,100. Bids 11/15. CD 10/24—ENR 10/26.

BRIDGES, GRADE CROSSINGS

PROPOSED WORK

Iowa—State Hy. Comn., Ames, 14 concrete box culverts and exten., 2 rein.-con. arch culverts, 150x24 ft. continuous I-beam bridge, 5-150x24 ft. high truss spans, with 4-51x24 ft. I-beam approach spans, S.H. 22 from S.H. 76 to Muscatine, FA 820 A, Muscatine Co.; 229x24 ft. continuous I-beam bridge and 70x24 ft. I-beam bridge, S.H. 188, west of Lake City, FA 727, Calhoun Co.; 5 rein.-con. box culverts and extens. 15x16 ft. timber bridge, County Trunk Rd. E, west of St. Charles, FAS229 B, Madison Co.; 50x22 ft. I-beam bridge, Co. trunk Rd. A in Sec. 11, over Caleb Creek, north of Clio, FAS 210 Wayne Co.

Mo., Kansas City — Atchison, Topeka & Santa Fe R. R., (eastern lines), H. W. Wagner, Topeka, Kan., ch. engr. and Burlington & Rock Island R. R., W. S. Broome, engr., Union Sta., Houston, Tex., joint owners, Chicago, Ill., 900 ft. steel, concrete viaduct, near 2 and Grand Aves. $300,000. Ash, Howard, Needles & Tamen, rear Leslie Bldg., engrs.

N. J., Trenton—Mercer Co. Freeholders, Court House, bridge to span Assunpink Creek on Memorial Dr. $60,000. H. F. Harris, Courthouse, engr.